

CLAIMS

1. An isolated xylanase derived from a strain of *Byssoschlamus*, *Chaetomium*, *Hemicola*, *Malbranchea*, *Mucor*, *Myceliophthora*, *Paecilomyces*, *Talaromyces*, *Thermoascus*, or *Thielavia*.
2. The xylanase of claim 1, which is derived from a strain of *Thermomyces*.
3. The xylanase of claim 2, which is derived from a strain of *Thermomyces lanuginosus*.
4. The xylanase of claim 3, which is derived from the strain *Thermomyces lanuginosus*, DSM 4109, or a mutant or a variant thereof.
5. The xylanase of claim 1, which has immunochemical properties identical or partially identical to those of a purified xylanase which is either
 - a) derived from the strain *Thermomyces lanuginosus*, DSM 4109; or
 - b) encoded by the DNA sequence presented as SEQ ID NO: 1; or
 - c) encoded by the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133.
6. The xylanase of claim 1, which is
 - a) encoded by the DNA sequence presented as SEQ ID NO: 1, or by the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or
 - b) encoded by a DNA sequence analogue to the xylanase encoding part of the DNA sequence presented as SEQ ID NO: 1, or to the DNA sequence obtained from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133, which analog DNA sequence either
 - i) is homologous to the xylanase encoding part of the DNA sequence presented as SEQ ID NO: 1, or to the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or

ii) hybridizes with the same oligonucleotide probe as the xylanase encoding part of the DNA sequence presented as SEQ ID NO: 1, or with the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or

5 iii) encodes a polypeptide which is at least 70% homologous to the polypeptide encoded by the DNA sequence presented as SEQ ID NO: 1, or to the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or

10 iv) encodes a polypeptide which is immunologically reactive with an antibody raised against the purified xylanase derived from the strain *Thermomyces lanuginosus*, DSM 4109, or encoded by the DNA sequence presented as SEQ ID NO: 1, or the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133.

15 7. The xylanase of claim 1, which has a residual enzyme activity of more than 96% after incubation for 60 minutes at pH 6.0 and 60°C.

8. The xylanase of claim 1, which has a residual enzyme activity of more than 83% after incubation for 60 minutes at pH 6.0 and 65°C.

20 9. The xylanase of claim 1, which has a residual enzyme activity of more than 20% after incubation for 60 minutes at pH 6.0 and 70°C.

10. The xylanase of claim 1, which has a residual enzyme activity of more than 10% after incubation for 60 minutes at pH 6.0 and 75°C.

25 11. An animal feed additive, comprising the xylanase of claim 1.

12. A DNA construct comprising a DNA sequence encoding a xylanase of claim 1, comprising:

30 a) the xylanase encoding part of the DNA sequence presented as SEQ ID NO: 1, or the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or

b) a DNA sequence analogue to the xylanase encoding part of the DNA sequence presented as SEQ ID NO: 1, or to the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133, which analog DNA sequence either

5 i) is homologous to the xylanase encoding part of the DNA sequence presented as SEQ ID NO: 1, or to the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or

ii) hybridizes with the same oligonucleotide probe as the xylanase encoding part of the DNA sequence presented as SEQ ID NO: 1, or with the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or

10 iii) encodes a polypeptide which is at least 70% homologous to the polypeptide encoded by the DNA sequence presented as SEQ ID NO: 1, or to the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133; or

15 iv) encodes a polypeptide which is immunologically reactive with an antibody raised against the purified xylanase derived from the strain *Thermomyces lanuginosus*, DSM 4109, or encoded by the DNA sequence presented as SEQ ID NO: 1, or the DNA sequence obtainable from the plasmid in the strain *Saccharomyces cerevisiae* DSM 10133.

20 13. The DNA construct of claim 12, in which the DNA sequence encoding the xylanase is derived from a strain of *Byssochlamys*, *Chaetomium*, *Humicola*, *Malbranchea*, *Mucor*, *Myceliophthora*, *Paecilomyces*, *Talaromyces*, *Thermoascus*, or *Thielavia*.

14. A recombinant expression vector comprising a DNA construct of claim 12.

25 15. A host cell comprising a DNA construct of claim 12.

16. The host cell according to claim 15, which is a eukaryotic cell.

30 17. The host cell according to claim 16, which cell belongs to a strain of *Aspergillus*.

18. A method of producing a xylanase, comprising
- (a) culturing the host cell of claim 15 under conditions permitting the production of the xylanase component, and
 - (b) recovering the xylanase from the culture.

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